NOAA Year 2000 Compliance Requirements

Meaning of NOAA Year 2000 Compliance

The purpose of this document is to provide a definition for NOAA systems that are Year 2000 Compliant.   Throughout the industry, the term year 2000 compliant remains ambiguous and ill-defined. To avoid confusion with less precise descriptions of year 2000 compliance, NOAA will use the term **NOAA Year 2000 Compliant** to identify systems which meet our definition. This document may evolve over time as we learn more about year 2000 requirements and testing.

I. To be **NOAA Year 2000 Compliant**, a NOAA system must be reviewed to confirm that it stores, processes (including sorting and performing mathematical operations), inputs, and outputs data containing date information correctly regardless of whether the data contains dates before, on, or after January 1, 2000.

II. Techniques: dates before, on or after January 1, 2000, may be interpreted and stored using either COMPLIANT or WINDOWING techniques.   A system termed **NOAA Year 2000 Compliant** means that the COMPLIANT technique was used. However, compliance by WINDOWING may be used in circumstances where compliance by the COMPLIANT technique is impractical, or where WINDOWING is required to meet specific external interface requirements. If the windowing technique is used, it must be specifically documented in the system description.   COMPLIANT and WINDOWING have the following definitions:

> COMPLIANT: All dates are stored, processed, input, and output in formats that preserve century, decade, and year information.

> WINDOWING: Dates are stored, input, or output in a format that preserves only decade and year information, but are processed through a sliding window calculation. For example, if the year is 00 to 60, add 2000, and if the year is 61 to 99, add 1900.There is no industry standard for the cut-off date used in such calculations, and therefore interfaces may not work correctly between programs or systems using different conventions. Any NOAA system achieving compliance through WINDOWING must clearly document the cut-off date and any other necessary information relating to the bridging calculation used.

III. Leap Year

The year 2000 itself must be correctly processed as a leap year, i. e., the two days following February 28, 2000, must properly be interpreted as Tuesday, February 29, 2000, and Wednesday, March 1, 2000.

IV. Display

When possible, any output or display of a date should use a four-digit year (YYYY). However, if two-digit display of a date is required and does not cause confusion, the year field may be displayed as two digits.

V. Firmware and Hardware

Any firmware, hardware, or networking component in a **NOAA Year 2000 Compliant** system must process dates in accordance with the requirements in this document.

VI. System Integration

Certification of NOAA Year 2000 compliance extends only to the specific system configuration tested, and does not include other software, firmware, or hardware components which may be used in conjunction with the tested configuration. For an NOAA system configuration consisting of multiple components to be considered **NOAA Year 2000 Compliant**, each constituent component, regardless of source, must be **NOAA Year 2000 Compliant** in accordance with this document, and the system as a whole must be tested for Year 2000 compliance.   Constituent components include all software (including operating systems, programs, packages, and utilities), firmware, hardware, networking components, and peripherals provided by NOAA as part of the configuration.

VII. Year 2000 System Compliance Requirements

All of the following questions must be answered as indicated or NA for any NOAA system to be identified as **NOAA Year 2000 Compliant**.   Any deviations from these responses must be specifically documented.

Although not required, it is highly recommended that "Test Assertions for Date and Time Functions" by Gary Fisher of NIST be used for testing date and time functions. The latest version of this document may be viewed at http://www.nist.gov/y2k/datetest.htm.

	DATE MANIPULATION QUESTIONS	NA	No	Yes	Required Value
	Does the system:				
1.	Use December 31, 1999, as a regular end of year without special meaning?				NA or Yes
2.	Treat September 9, 1999, as a regular day with no special meaning?				NA or Yes
3.	Do any of the following date field manipulations?				NA or No
4.	-99 indicates last record				NA or No
5.	-00 to indicate a null record				NA or No
6.	-99 and 00 default values				NA or No
7.	-Special interpretations of 00				NA or No
8.	-Hard coded 19 in 4-digit year field				NA or No
9.	-Separate manipulations of century digits				NA or No
10.	Include any license date expiries associated with the end of 1999?				NA or No
11.	Use dates in name constructions?				NA or No
12.	Mix date data and control information in commands or flags which are interpreted as one or the other depending on their values?				NA or No
13.	Use a date as part of the key of an indexed file?				NA or No

	YEAR AND CENTURY QUESTIONS	NA	No	Yes	Yes

	Does the system:				
1.	Recognize 2000 as a leap year?				NA or Yes
2.	Allow itself to be set to any date after 12/31/1999 including 02/29/2000?				NA or Yes
3.	Indicate the correct day, date and time when the following test is performed: With the date set to 12/31/1999, power the system off and then back on when the time will be in 1/1/2000.				NA or Yes
4.	Indicate the correct day, date, and time when the following test is performed: With the date set to some time after 1/1/2000, power the system off and back on.				NA or Yes
5.	Display the date correctly as 2/29/2000 when the following test is performed: With the date set to 2/28/2000, power the system off, and then back on when the next day has been reached.				NA or Yes
6.	Treat December 31, 1999, as a Friday?				NA or Yes
7.	Treat January 1, 2000, as a Saturday?				NA or Yes
8.	Treat February 29, 2000, as a Tuesday?				NA or Yes
9.	Treat December 7, 2000, as a Thursday?				NA or Yes
10.	Treat December 31, 2000, as a Sunday?				NA or Yes
11.	Treat January 1, 2001, as a Monday?				NA or Yes
12.	Treat March 1, 2000, as a Wednesday?				NA or Yes
13.	Treat February 28, 2001, as a Wednesday?				NA or Yes
14.	Treat March 1, 2001, as a Thursday?				NA or Yes

	DATA BASE ACCESS AND STORAGE	NA	No	Yes	Yes
	Does the system:				
1.	Code all years as in a manner that preserves century, decade, and year information?				NA or Yes
2.	Correctly perform all of the following manipulations across the century boundary?				NA or Yes
3.	-Computations of time spans, due-dates, etc.				NA or Yes
4.	-Sorting of data				NA or Yes
5.	-Selections based on key fields				NA or Yes
6.	-Selections based on non-key fields				NA or Yes

	OS & APPLICATION QUESTIONS	NA	No	Yes	Yes

	Does the system:				
1.	Display the year as an unambiguous value with a minimum of two digits?				NA or Yes
2.	Correctly handle data with dates before 1/1/2000, on 1/1/2000 and after 1/1/2000 with the system clock set to today's date?				NA or Yes
3.	Correctly handle data with dates before 1/1/2000, on 1/1/2000 and after 1/1/2000 with the system clock set to1/1/2000?				NA or Yes
4.	Correctly handle data with dates before 1/1/2000, on 1/1/2000 and after 1/1/2000 with the system clock set after 1/1/2000?				NA or Yes
5.	Correctly handle data with dates before 1/1/2000, on 1/1/2000 and after 1/1/2000 with the system clock set to 12/31/1999?				NA or Yes
6.	Correctly process dates with the system clock set to 12/31/1999 and processing allowed to continue across the century boundary?				NA or Yes
7.	Correctly handle date comparisons where one date is not greater than 12/31/1999 and the other date is not less than 1/1/2000?				NA or Yes
8.	Use a sliding window for year calculations?				NA or No
9.	Contain a date format that does not preserve century information?				NA or No
10.	Create and/or store data in files or log files or, or generate reports that do not preserve century information in date fields?				NA or No
11.	Use a 32 bit incrementing signed value for date and time?				NA or No
12.	Correctly set and maintain the century digits in the real time clock; if the system uses AT -class PC's (286 through Pentiums and clones), does the operating system or your system software correctly set and maintain the century digits in the real-time-clock?				NA or Yes
13.	Correctly handle all time interval calculations based on the century transition - both looking back into the past, and looking forward into the future?				NA or Yes
14.	Correctly handle future time interval calculations that span the century transition?				NA or Yes
15.	If required, correctly handle date and time interval calculations based on the use of data previously stored by the system or previous versions of the system?				NA or Yes
16.	Formally tested for year 2000 compliance?				NA or Yes